

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) An apparatus for the placement of surgical implements, comprising:

a fixture that defines a plurality of attachment points that are fixed relative to each other;

a plurality of cannulas coupled to [[a]] the fixture with each of the plurality of cannulas coupled to a respective one of the plurality of attachment points;

at least one trackable marker associated with the plurality of cannulas, the at least one trackable marker mounted on a frame that is coupled to the fixture to enable an instrument location system to detect a position of each of the plurality of cannulas throughout a surgical procedure; and

a plurality of surgical implement receivers provided on the fixture for receiving surgical implements, at least one of the plurality of receivers being substantially coaxially aligned with a respective one of the plurality of cannulas to enable a surgical implement to pass through a respective one of the plurality of receivers and a respective one of the plurality of cannulas.

2. (Canceled)

3. (Original) The apparatus of Claim 1, further comprising:

a peripheral structure, coupled to the fixture, for maneuvering the plurality of cannulas during a surgical procedure to place the surgical implements.

4. (Original) The apparatus of Claim 1, wherein at least one of the surgical receivers is a flange configured to receive the surgical implements.

5. (Original) The apparatus of Claim 1, wherein at least one of the plurality of cannulas is individually adjustable to vary its length.

6. (Original) The apparatus of Claim 1, wherein at least one of the plurality of cannulas is individually adjustable to vary at least one of its angular positions.

7. (Original) The apparatus of Claim 6, wherein the at least one angular position is an azimuth angular position measured in a horizontal reference plane associated with the fixture.

8. (Original) The apparatus of Claim 6, wherein the at least one angular position is an elevation angular position measured in a vertical reference plane associated with the fixture.

9. (Original) The apparatus of Claim 1, wherein the fixture is interchangeable and is configured to accommodate at least one of: a variable number of

cannulas, cannulas having a plurality of relative placements, or cannulas having a plurality of fixed relative angles.

10. (Original) The apparatus of Claim 4, wherein the peripheral structure is a handle.

11. (Original) The apparatus of Claim 4, wherein the peripheral structure is machine operated means.

12. (Previously Presented) The apparatus of Claim 1, further comprising:
a plurality of interchangeable frames, at least two of the frames having a different type of trackable marker.

13. (Original) The apparatus of Claim 1, wherein the surgical implement is at least one of a surgical tool or an implant.

14. (Original) The apparatus of Claim 1, wherein at least one of the plurality of cannulas can be interchanged with a cannula having at least one of a different inner diameter or outer diameter.

15. (Original) The apparatus of Claim 1, wherein at least one of the plurality of cannulas is individually adjustable to vary at least one of its inner diameter or outer diameter.

16. (Original) The apparatus of Claim 1, wherein at least one of the plurality of cannulas includes a serrated structure for gripping portions of a patient's anatomy.

17. (Original) The apparatus of Claim 1, wherein the at least one trackable marker is selected from a group comprising a reflective marker, a light emitting marker, an acoustic marker, a magnetic marker, an optical marker, an electromagnetic marker, a radiological marker, and combinations thereof.

18. (Canceled)

19. (Previously Presented) The apparatus of Claim 1, wherein the frame is removably coupled relative to the fixture using a dove-tail connection.

20.-38. (Canceled)

39. (Currently Amended) An apparatus for the placement of surgical implements, comprising:

a first fixture having a first configuration defined by a plurality of attachment points that are fixed relative to each other;

a second fixture different from the first fixture and having a second configuration defined by a plurality of attachment points that are fixed relative to each other;

a plurality of cannulas operable to be coupled to at least one of the first fixture or the second fixture via the respective plurality of attachment points; and

at least one trackable marker associated with the plurality of cannulas, the at least one trackable marker mounted on a frame, the frame operable to be coupled to the first fixture or the second fixture, wherein upon coupling the plurality of cannulas with the first fixture or the second fixture, the plurality of cannulas are positioned in at least one of the first configuration or the second configuration, and the at least one trackable marker is detectable by an instrument location system to detect the position of the plurality of cannulas relative to an anatomy in real-time.

40. (Original) The apparatus of Claim 39, wherein the plurality of cannulas are positioned parallel to one another in the first configuration.

41. (Original) The apparatus of Claim 40, wherein the second fixture is operable to enable at least one of the plurality of cannulas to be individually adjustable to vary its angular position relative to the second fixture.

42. (Original) The apparatus of Claim 39, wherein at least one of the plurality of cannulas is individually adjustable to vary its length.

43. (Original) The apparatus of Claim 39, wherein at least one of the plurality of cannulas is individually adjustable to vary at least one of its angular positions.

44. (Original) The apparatus of Claim 39, wherein the at least one trackable marker is selected from a group comprising a reflective marker, a light emitting marker, an acoustic marker, a magnetic marker, an optical marker, an electromagnetic marker, a radiological marker, and combinations thereof.

45. (Original) The apparatus of Claim 39, wherein the surgical implement is at least one of a surgical tool or an implant.

46. (Canceled)

47. (Original) The apparatus of Claim 39, further comprising:
a plurality of interchangeable frames, at least two of the frames having a different type of trackable marker.

48. (Currently Amended) An apparatus for the placement of surgical implements, comprising:

a fixture that includes a ~~graspable portion~~ handle and a plurality of attachment points that are fixed relative to each other;

a plurality of cannulas each coupled to a respective one of the plurality of attachment points of the fixture so that manipulation of the handle maneuvers the plurality of cannulas simultaneously and the plurality of cannulas are independently adjustable relative to the fixture;

a plurality of trackable markers coupled to the fixture;

a surgical navigation system that tracks the plurality of trackable markers to determine a position of each of the plurality of cannulas relative to an anatomy; and

a display that displays an icon representative of the position of each of the plurality of cannulas superimposed onto an image of the anatomy.

49. (Previously Presented) The apparatus of Claim 48, further comprising:

a plurality of surgical implement receivers provided on the fixture for receiving surgical implements, at least one of the plurality of receivers being substantially coaxially aligned with a respective one of the plurality of cannulas.

50. (Previously Presented) The apparatus of Claim 49, further comprising:

an imaging device operable to acquire one or more images of the anatomy.

51. (Previously Presented) The apparatus of Claim 48, wherein the fixture is interchangeable and is configured to accommodate at least one of: a variable number of cannulas, a plurality of cannulas having a plurality of placements relative to the fixture, or a plurality of cannulas having a plurality of fixed relative angles.

52. (Previously Presented) The apparatus of Claim 1, further comprising:
a display that displays an icon representative of the position of each of the plurality of cannulas overlaid onto an image of the anatomy.

53. (New) The apparatus of Claim 48, wherein the display also displays a plurality of icons that each represent a projected trajectory for each of the plurality of cannulas superimposed onto the image of the anatomy.

54. (New) The apparatus of Claim 3, wherein the peripheral structure is fixed relative to the plurality of attachment points.